ABSTRACT

An improved electro-hydraulic brake system having features for improving the pedal feel of the system, while further having design features which contribute to the economy of manufacture of certain components of the system. The system provides for an electrically powered normal source of pressurized hydraulic brake fluid, and a manually powered backup source of pressurized hydraulic brake fluid to the vehicle brakes in the event of failure of the normal source. During normal braking, fluid from the backup source is redirected from the vehicle brakes to a pedal simulator. The pedal simulator preferably includes arrangements of spring loaded pistons, expansion volumes, and damping orifices, together with valves selectively controlling the flow of fluid to and from the pedal simulator which provides for an improved pedal feel during vehicle braking. The brake system of the invention further includes a relatively low cost fluid separator unit which is provided which prevents intermixing of pressurized fluid between the backup source and the normal source. The fluid separator unit acts to permit the normal source to act upon the hydraulic brake fluid of the backup source to operate the vehicle brakes. The fluid separator unit is preferably embodied as a piston having two working faces, each of the same diameter.